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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Eiichi Takahashi

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EXAMINER

LAZARO, DAVID R

ART UNIT

PAPER NUMBER

2155

DATE MAILED: 10/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/800,488

Applicant(s)

TAKAHASHI ET AL.

Examiner

David Lazaro

Art Unit

2155

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendment filed 06/29/06.
2. Claims 1, 9 and 14 were amended.
3. Claims 10-13 are canceled.
4. Claims 1-9 and 14 are pending in this office action.

Response to Amendment

5. Applicant's arguments with respect to claims 1-7 and 9 and related to the limitations concerning a "predetermined portion" have been considered but are moot in view of the new ground(s) of rejection. Any remaining arguments have been fully considered but they are not persuasive. See Response to Arguments.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 8 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 5,943,480 by Neidhardt (Neidhardt).

8. With respect to Claim 8, Neidhardt teaches a network server load detection method comprising:

monitoring a communication to a client from a server, and counting a receivable data size and a connection count of which said server notifies said client (Col. 6 lines 17-25 and Col. 7 lines 10-35);

obtaining the receivable data size per connection as a server load (Col. 7 lines 10-35 and Col. 8 lines 5-49 and Col. 9 lines 1-12- load is based on traffic volume, queue sizes and overflows, which can all be considered a 'communication data size');

storing a maximum value of the receivable data size per connection, and judging, if the receivable data size per connection becomes small with respect to the maximum value, that said server is under a high load (Col. 9 lines 1-12, Col. 2 lines 39-65, Col. 4 lines 3-15 - the population estimates uniformly increasing after a buffer overflow is the condition where the queue and window size have reached their maximum and subsequently the window size is decrease from that maximum. both are indicative of the server being under high load).

9. With respect to Claim 14, Neidhardt teaches a method for determining load on a computer, comprising:

determining an amount of data communication between the computer and a second device (Col. 7 lines 10-35 and Col. 8 lines 5-49 and Col. 9 lines 1-12); and

judging the load on the computer according to a reduction in size of the data communication, said judging of the load being made according to a change in the amount of data (Col. 9 lines 1-12).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1, 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neidhardt in view of "Congestion Avoidance and Control" by Jacobson et al. (Jacobson).

12. With respect to Claim 1, Neidhardt teaches a network server load detection method comprising:

monitoring a communication from a client to a server, the communication including at least one connection having a communication data size (Col. 6 lines 17-25 and Col. 7 lines 10-35)

detecting a change in the communication data size of the connection of the client and server (Col. 8 lines 5-49 and Col. 9 lines 1-12: essentially steps 4-7 are related to detecting changes in traffic volume, queue sizes and overflows);

recording a maximum size value of the communication data size ; and judging, if the detected change of the communication data size of the connection decreases with respect to the recorded maximum size value, that said server is under a high load (Col. 9 lines 1-12, Col. 2 lines 39-65, Col. 4 lines 3-15 - the population estimates uniformly increasing after a buffer overflow is the condition where the queue and window size

have reached their maximum and subsequently the window size is decrease from that maximum. Both are indicative of the server being under high load).

Neidhardt does not explicitly disclose the communication data size of the connection decreases below a predetermined proportion of the recorded maximum size value. Jacobson shows that the typical way of reducing the window size during high load is by decreasing the window size to a size that is proportional to the previous maximum window size (Page 9). As such, this decrease to a proportional size of the maximum window size is indicative of a high load.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Neidhardt and modify it as indicated by Jacobson such that it further comprises judging, if the detected change of the communication data size of the connection decreases below a predetermined proportion of the recorded maximum size value, that said server is under a high load. One would be motivated to have this, as it is desirable to provide more accurate information about the demands on network resources (In Neidhardt: Col.1 lines 6-15).

13. With respect to Claim 2, Neidhardt teaches all the limitations of Claim 1, further comprising counting a number of connections including the at least one connection and the communication data size until a monitored count of communications reaches a monitored communication minimum count and until a count time reaches a monitor minimum time (In Neidhardt: Col. 7 lines 36 - Col. 8 line 18).

14. With respect to Claim 9, Neidhardt teaches a network server load detections system for monitoring a communication to a server from a client and detecting a load state of said server, comprising:

data size calculating means for calculating a size of communication data per connection of the client and server (Col. 6 lines 17-25 and Col. 7 lines 10-35).

storage means for detecting a change in the communication data size per connection, and storing a maximum value (Col. 8 lines 5-49 and Col. 9 lines 1-12);

load detection means for detecting a high load of said server when the detected change of the communication data size per connection at that point of time becomes smaller than the maximum value (Col. 9 lines 1-12, Col. 2 lines 39-65, Col. 4 lines 3-15 - the population estimates uniformly increasing after a buffer overflow is the condition where the queue and window size have reached their maximum and subsequently the window size is decrease from that maximum. both are indicative of the server being under high load).

Neidhardt does not explicitly disclose the communication data size becoming smaller than a predetermined proportion of the recorded maximum size value.

Jacobson shows that the typical way of reducing the window size during high load is by decreasing the window size to a size that is proportional to the previous maximum window size (Page 9). As such, this decrease to a proportional size of the maximum window size is indicative of a high load.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the system disclosed by Neidhardt and modify it as

indicated by Jacobson such that it further comprises load detection means for detecting a high load of said server when the detected change of the communication data size per connection at that point of time becomes smaller than a predetermined proportion of the maximum value. One would be motivated to have this, as it is desirable to provide more accurate information about the demands on network resources (In Neidhardt: Col.1 lines 6-15).

15. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neidhardt in view of Jacobson in further view of U.S. Patent 5,400,329 by Tokura et al. (Tokura).

16. With respect to Claim 3, Neidhardt in view of Jacobson teaches all the limitations of Claim 1, further comprising recognizing communications of a start and end of the connection (Col. 2 lines 54-65 - transport protocols such as TCP, inherently recognize the start and end communications, ie the SYN and FIN packets. Furthermore, these packets are known to be of a small data size.

Neidhardt does not explicitly disclose excluding data sizes of the start and end of the connection from the calculation load. Tokura teaches that packets of small size can be ignored for congestion calculations (Col. 12 lines 4-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Neidhardt in view of Jacobson and modify it as indicated by Tokura such that the method further comprises excluding data sizes of the start and end of the connection from the calculation load since the SYN and

FIN packets are of small data size. One would be motivated to have this as it simplifies calculations while retaining a high degree of accuracy (In Tokura: Col. 2 lines 43-64, Col. 12 lines 4-8 and Col. 25 lines 22-33).

17. With respect to Claim 5, Neidhardt in view of Jacobson teaches all the limitations of Claim 1, further comprising obtaining a distribution of the communication data sizes from said clients (Col. 8 lines 19-40).

Neidhardt does not explicitly disclose distinguishing between extremely small pieces of communication data unrelated to the load of the server from the communication data size distribution; and eliminating the extremely small pieces of communication data from the judgment about the load. Tokura teaches distinguishing extremely small pieces unrelated to the load of the server and eliminating them from calculations related to congestion (Col. 12 lines 4-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Neidhardt in view of Jacobson and modify it as indicated by Tokura such that the method further comprises distinguishing between extremely small pieces of communication data unrelated to the load of the server from the communication data size distribution; and eliminating the extremely small pieces of communication data from the judgment about the load. One would be motivated to have this as it simplifies calculations while retaining a high degree of accuracy (In Tokura: Col. 2 lines 43-64, Col. 12 lines 4-8 and Col. 25 lines 22-33).

18. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neidhardt in view Jacobson and in further view of U.S. Patent 6,104,717 by Coile et al. (Coile).

19. With respect to Claim 4, Neidhardt in view of Jacobson teaches all the limitations of Claim 1, but does not explicitly disclose retaining information of the communication of the start of connection till the connection is ended or established; detecting the communication of the start of the connection for re-connection executed when judging that said client fails to connect on the basis of the information retained; and setting a rate at which the communication of the re-connection occupies the number of the communications of the start of connection as a load of said server and, if this rate is high, judging that said server is under the high load.

Coile teaches retaining information of the communication of the start of connection till the connection is ended or established (Col. 9 line 66-Col. 10 line 36); detecting the communication of the start of the connection for re-connection executed when judging that said client fails to connect on the basis of the information retained (Col. 9 line 66-Col. 10 line 36); and setting a rate at which the communication of the re-connection occupies the number of the communications of the start of connection as a load of said server and, if this rate is high, judging that said server is under the high load (Col. 10 lines 36-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Neidhardt in view of Jacobson and modify it as indicated by Coile such that the method further comprises retaining information of the communication of the start of connection till the connection is ended

or established; detecting the communication of the start of the connection for re-connection executed when judging that said client fails to connect on the basis of the information retained; and setting a rate at which the communication of the re-connection occupies the number of the communications of the start of connection as a load of said server and, if this rate is high, judging that said server is under the high load. One would be motivated to have this, as it provides a reliable determination of the load on a given server (In Coile: col. 2 lines 10-34).

20. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neidhardt in view of Jacobson and in further view of U.S. Patent 6,219,712 by Mann et al. (Mann)

21. With respect to Claim 6, Neidhardt in view of Jacobson teaches all the limitations of Claim 1, but does not explicitly disclose obtaining a sequence number from the communication to said server from said client; retaining a maximum value of the sequence number till the connection is ended since the start of connection; comparing the sequence number of the communication received with the sequence number retained; and excluding, if the sequence number obtained from the communication is smaller than the sequence number retained, this communication from counting.

Mann teaches obtaining a sequence number from the communication to said server from said client; retaining a maximum value of the sequence number till the connection is ended since the start of connection; comparing the sequence number of the communication received with the sequence number retained; and excluding, if the

sequence number obtained from the communication is smaller than the sequence number retained, this communication from counting (Col. 16 lines 18-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Neidhardt in view of Jacobson and modify it as indicated by Mann such that the method further comprises obtaining a sequence number from the communication to said server from said client; retaining a maximum value of the sequence number till the connection is ended since the start of connection; comparing the sequence number of the communication received with the sequence number retained; and excluding, if the sequence number obtained from the communication is smaller than the sequence number retained, this communication from counting. One would be motivated to have this, as it is important to account for delayed communications in order to keep congestion detection up to date (In Mann: Col. 16 lines 51-67 and Col. 18 lines 16-32).

22. With respect to Claim 7, Neidhardt in view of Jacobson teaches all the limitations of Claim 6, further comprising: counting, if the sequence number obtained from the communication is smaller than the sequence number retained, the communication data after executing a weighting process thereon, or predicting a communication data size when there is no problem on a route from the two sequence numbers, and counting the predicted data size for detecting the load (In Mann: Col. 18 line 4-32).

Response to Arguments

23. Applicant's arguments with respect to claims 1-7 and 9 and related to the limitations concerning a "predetermined portion" have been considered but are moot in view of the new ground(s) of rejection. Any remaining arguments have been fully considered but they are not persuasive.

24. Applicant argues in the remarks - *"Therefore, in the present invention, a reduction in the communication data size of a connection indicates that the server is under high load. In direct contrast, in Neidhardt, the overflowing of a queue, that is, and increase in queue size, indicates that the particular resource is operating beyond its capacity...Although Neidhardt discloses a reduction in window size, as the Examiner indicates, the reduction in window size is simply a result of the overflowing of the queue, not an indication that the queue is overflowing"*

a. Examiner's response - The examiner does not see how a result of an overflow is not indicative of the overflow. If the reduction in window size is the outcome or consequence of a queue overflow, then the reduction in window size is clearly an indication of a queue overflow.

b. The teachings of Neidhardt clearly show a detection of a reduction in window size and further makes determination of a high load. Neidhardt states, *"If the population estimates are uniformly increasing, that indicates that following the queue overflow, the transport protocol, for example TCP, reduced window sizes and the window sizes were then slowly increased."* (emphasis added, Col. 9 lines 4-10) Based on this detection, of a reduction in window size a determination of a high load is made.

c. Applicants arguments are not persuasive.

Conclusion

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lazaro whose telephone number is 571-272-3986. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2155

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



David Lazaro
September 26, 2006



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